



Ferndale Primary and Nursery School

Year 5 Science

Working Scientifically

Planning: <ul style="list-style-type: none"> • Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary 	Observing/obtaining evidence: <ul style="list-style-type: none"> • Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate 	Recording: <ul style="list-style-type: none"> • Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs 	Concluding: <ul style="list-style-type: none"> • Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. 	Evaluating: <ul style="list-style-type: none"> • Using test results to make predictions to set up further comparative and fair tests. • Identifying scientific evidence that has been used to support or refute ideas or arguments
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Language Enrichment	First Hand Experiences	Purpose / Life Skills	Previous Knowledge
Plan, variables, measurements, accuracy, precision, repeat findings, scientific diagrams, labels, classification keys, tables, scatter graphs, bar graphs, line graphs, predictions, further comparative, fair test, report, present conclusions, causal relationships, explanations, degree of trust, oral and written display and presentation, support or refute ideas or arguments, identify, classify and describe patterns,	Practical, hands on lessons and enquiries	Develop knowledge and understanding of the scientific enquiry process which scientists go through To behave and think like scientists.	Planning: <ul style="list-style-type: none"> • Asking relevant questions and using different types of scientific enquiries to answer them • Setting up simple practical enquiries, comparative and fair tests Observing/obtaining evidence: <ul style="list-style-type: none"> • Making systematic and careful observations and where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers



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systematic, quantitative, measurements, enquiry, comparative testing, identifying, classifying, grouping, observing over time, pattern seeking, research using secondary sources

Recording:

- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables

Concluding:

- Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- Identifying differences, similarities or changes related to simple scientific ideas and processes
- Using straightforward scientific evidence to answer questions or to support their findings

Evaluating:

- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.



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Biology

Animals including Humans:

- Describe the changes as humans develop to old age

Living Things and their habitats:

- Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
- Describe the life process of reproduction in some plants and animals

Language Enrichment	First Hand Experiences	Purpose / Life Skills	Previous Knowledge
<p><u>Animals including Humans</u> <u>Key vocabulary:</u> Puberty</p> <p><u>Living things and their habitats</u> <u>Key vocabulary:</u> Life cycle, reproduce, sexual, fertilises, asexual, plantlets, runners, tubers, bulbs, cuttings</p>	<p><u>Animals including Humans:</u></p> <ul style="list-style-type: none"> • Talk about changes they have already gone through so far <p><u>Living things and their habitats:</u></p> <ul style="list-style-type: none"> • Look at parts of a plant • 	<p><u>Animals including Humans:</u></p> <ul style="list-style-type: none"> • Knowledge of the changes which will happen to their bodies as they grow • <p><u>Living things and their habitats:</u></p> <ul style="list-style-type: none"> • How animals change/ grow- caring for animals • Growing/gardening skills 	<p><u>Animals including Humans:</u></p> <ul style="list-style-type: none"> • Notice that animals, including humans, have offspring which grow into adults (Yr2) <p><u>Living Things and their habitats:</u></p> <ul style="list-style-type: none"> • Notice that animals, including humans, have offspring which grow into adults (Yr2) • Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal (Yr3)



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Chemistry

Properties and changes of materials

- Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
- Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
- Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
- Demonstrate that dissolving, mixing and changes of state are reversible changes
- Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

Language Enrichment	First Hand Experiences	Purpose / Life Skills	Previous Knowledge
Thermal/electrical conductor/insulator, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible, non-reversible change, burning, rusting, new material	<ul style="list-style-type: none"> • Separating materials/mixtures in a range of ways e.g. dissolving, filtering, sieving • Identify different properties of materials e.g. are they magnetic? 	<ul style="list-style-type: none"> • Cooking • Building- knowledge of materials and properties 	<ul style="list-style-type: none"> • Identify and compare the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses (Yr2) • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching (Yr2) • Compare and group together a variety of everyday materials on the basis of whether they are attracted



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			<p>to a magnet, and identify some magnetic materials (Yr3)</p> <ul style="list-style-type: none">• Compare and group materials together, according to whether they are solids, liquids or gases (Yr4)• Observe that some materials change state when they are heated or cooled and measure or research the temperature at which this happens in degrees Celsius (Yr4)• Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature (Yr4)
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Physics

Forces:

- Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
- Identify the effects of air resistance, water resistance and friction, that act between moving surfaces
- Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Earth and Space

- Describe the movement of the Earth, and other planets, relative to the Sun in the solar system
- Describe the movement of the Moon relative to the Earth
- Describe the Sun, Earth and Moon as approximately spherical bodies
- Use the idea of the Earth's rotation to explain day and night and that apparent movement of the sun across the sky.

Language Enrichment

Forces Key vocabulary:

Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, lever, pulleys, gears

Earth and Space Key vocabulary:

Sun, Moon, Earth, planets (Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune), star, spherical, Solar System, rotate, orbit

First Hand Experiences

Forces:

- Paper spinners- air resistance
- Water resistance
- Friction investigation
- DT link- making moving cars with pulleys

Earth and Space:

- Explorer Dome
- Science 'take home' bags with telescopes and stargazing books
- Discussion and sharing of photos from the JWST and any other relevant space news

Purpose / Life Skills

Forces:

- Scientists- Isaac Newton
- Engineering- mechanisms
- Water/air resistance and friction- design- why objects are made in a certain way and with certain materials. How to reduce/increase the effects of water/air resistance and friction

Earth and Space:

- To have an interest and curiosity of the world around them and how we fit in the solar system.

Previous Knowledge

Forces:

- Compare how things move on different surfaces (Yr3)
- Notice that some forces need contact between two objects, but magnetic forces can act at a distance (Yr3)
- Observe how magnets attract or repel each other and attract some materials and not others (Yr3)
- Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials (Yr3)



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- Role play- act out the movement of the planets, Sun and Moon.
- Shadows to explain movement of the sun.

- Astronauts- Neil Armstrong, Buzz Aldrin, Tim Peake
- To inspire children and share STEM/space careers

- Describe magnets as having two poles (Yr3)
- Predict whether two magnets will attract or repel each other, depending on which poles are facing (Yr3)

Earth and Space:

- Explore the natural world around them (Nursery)
- Describe what they see, hear and feel whilst outside (FS)
- Observe changes across the four seasons (Yr1)
- Observe and describe weather associated with the seasons and how day length varies (Yr1)